

PROCEEDINGS
OF
THE ROYAL SOCIETY.

November 19, 1863.

Major-General SABINE, President, in the Chair.

In accordance with the Statutes, notice of the ensuing Anniversary Meeting for the election of Council and Officers was given from the Chair.

The President stated that Captain L. L. B. Ibbetson, who by reason of non-payment of his annual contribution ceased to be a Fellow of the Society at the last Anniversary, had applied for readmission; and an extract from his letter to the Council was read, explaining the circumstances under which, during his absence on the Continent, the omission of payment had taken place. Notice was accordingly given that the question of Captain Ibbetson's readmission would be put to the ballot at the next Meeting.

William Crookes, Esq.; Frederick Field, Esq.; and John Russell Hind, Esq., were admitted into the Society.

Dr. Alderson, Mr. Busk, Dr. Gladstone, Professor Pole, and Mr. Archibald Smith, having been nominated by the President, were elected by ballot Auditors of the Treasurer's accounts on the part of the Society.

The following communications were read:—

- I. "On Mauve or Aniline-Purple." By W. H. PERKIN, Esq. (See vol. xii. p. 713.)
- II. "Notes of Researches on the Intimate Structure of the Brain."
—Third Series. By J. LOCKHART CLARKE, Esq., F.R.S. (See vol. xii. p. 716.)

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III. "A General Catalogue of Nebulæ and Clusters of Stars for the Year 1860·0, with Precessions for 1880·0." By Sir J. F. W. HERSCHEL, Bart., F.R.S. Received Oct. 16, 1863.

(Abstract.)

This Catalogue contains all the nebulæ and clusters of stars which its compiler has been able to find anywhere described, and identified in position sufficiently to warrant their inclusion, with exception of a few which, having been observed by Lacaille or others with telescopes of very small power, have been obviously nothing but insignificant groups of small stars indistinctly seen. The number of objects comprised in it is 5078, including—1st. 2508 nebulæ and clusters described by the late Sir Wm. Herschel in his Catalogues of Nebulæ communicated to the Royal Society. 2ndly. Those comprised in the lists published by Messier, discovered by himself, Mairan, Oriani, and others, to the number of 102. 3rdly. Those contained in M. Auwers's list of "New Nebulæ" (*Verzeichniss neuer Nebelflecke*) at the end of his Catalogue of Sir Wm. Herschel's nebulæ (about 50 in number), and those few of Lacaille's nebulæ which seem entitled to be regarded as such from the description given of them. 4thly. A great many nebulæ pointed out by Lord Rosse in his paper in *Phil. Trans.* 1861, their places being indicated with sufficient probable precision to allow of their being re-observed and identified. 5thly. 125 new nebulæ obligingly communicated by M. D'Arrest, of his own discovery, for inclusion in this Catalogue; and some few others (some very remarkable ones) collected from various sources, as announced from time to time by their respective discoverers. And 6thly. 15 nebulæ not before described, communicated by Professor Bond, which are included in a small supplementary list. The remainder will be found described and their places (reduced to 1830) given in the Catalogue of Nebulæ and Clusters communicated to the Royal Society by the compiler in 1833, and in his 'Results of Astronomical Observations at the Cape of Good Hope,' published in 1847.

The places of the objects contained in the present Catalogue were in the first instance brought up by its compiler to the common epoch (1830), availing himself, so far as respects the nebulæ of Sir Wm. Herschel's catalogues, of a reduction to 1800 of all the individual observations of each nebula, by his sister the late Miss Caroline Herschel, which reduction, arranged in the form of a catalogue in zones, together with the originals of all the "sweeps" in which the observations are contained, and a synoptic register of those of each nebula in separate sheets for reference, with other original papers elucidatory of the above-mentioned documents, as well as the whole series of Sir Wm. Herschel's observations of Messier's nebulæ, accompany this communication for future reference.

In order, however, to render the catalogue so compiled available for future observation, it was considered desirable to bring the whole up to a later epoch. The computations necessary for this purpose being very

extensive and of a nature to be safely entrusted to other hands, the Royal Society, on the application of the compiler, readily and most liberally consented to supply the funds for defraying the necessary expense of this operation. On consultation with the Astronomer Royal, it was resolved that the places having been first roughly brought up to 1860, the places so obtained should be used to compute the precessions for 1880, *by the application of which* to the original places the final and exact places for 1860 should be obtained and entered up. This will secure the availability for the use of observations, of the present Catalogue, without fear of material error up to the year 1930 at least. The actual computation was executed by Mr. Kerschner, one of the computists employed at the Royal Observatory, the Astronomer Royal kindly undertaking the arrangement and supervision of the work. The computations were made on printed forms, and are preserved for reference.

The Catalogue is arranged in general order of right ascension—in columns, containing a current general number, four columns of synonyms and references to the original authorities; the right ascension, precession in R.A., and the number of observations on which this element relies; a similar set of columns for the North Polar distance, and a brief description, in abbreviated language, of the object, deduced from a careful comparison *inter se* of all the descriptions given in the original observations. Lastly, are appended two columns,—the one containing the total number of times the object has been *seen* by Sir Wm. Herschel and by the author of the present paper; the other, references to a series of notes annexed at the end of the Catalogue, and to a general list of places where engraved figures of the objects will be found.

The notes so appended contain remarks on every particular brought under discussion as affecting the evidence on which the adopted places rest, and whatever else may be considered requiring explanation in reference to each object. In particular they give the results of a very careful comparison of the present Catalogue with the elaborate catalogue (for 1830) of M. Auwers, already mentioned, of the existence of which the compiler was not aware till the whole of the computations had been completed and the present Catalogue arranged and copied out. This comparison has led to the detection (as might very reasonably be expected) of several instances of mistaken identification of stars of comparison, and some few of numerical error, and has so far resulted in the expurgation and improvement of both catalogues.

A general list of figured nebulae, with references to the works in which the figures are to be found, and lists of errata and corrections discovered in the various works consulted, concludes the work.